NAVAL HEALTH RESEARCH CENTER

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Report No. 01-13

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Report No. 01-13 was supported by the Office of Naval Research, Arlington, VA, under Work Unit No. 63706N M0095.001-60101. The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the U.S. Government. Approved for public release; distribution unlimited. This research has been conducted in compliance with all applicable Federal Regulations governing the Protection of Human Subjects in Research.

Summary

Problem

Military Operations Other Than War (OOTW) such as peacekeeping, disaster relief, and humanitarian assistance are basic to two of the foundations of US military strategy: forward presence and crisis response. The provision of Health Service Support is a major factor in OOTW, and Navy medical units may need to make rapid deployments to varied geographic areas where the host country's medical infrastructure may be in chaos. It is important to consider OOTW as well as war when planners and logisticians strive to maintain operational readiness.

Objective

The goals of this project were to gather medical treatment data for the development of the Naval Health Research Center (NHRC) OOTW database, and to create an improved patient encounter form with a reasonably simple format that would be convenient for providers.

Approach

For the present study, researchers adapted a previously developed patient encounter form to fit the Guatemalan OOTW mission. For example, provider specialties included ophthalmology, optometry, pediatrics, and dermatology. The form, therefore, included conditions, treatments, and medications specific to these fields, as well as those that might be encountered in the Guatemalan climate and geography. In Guatemala, healthcare providers used the revised form to collect data for more than 75% of all patient encounters. The completed forms were returned to NHRC, where researchers created an electronic database and analyzed the data. Navy physicians who had accompanied HELPS, International were available for consultation in the event that questions arose during the analysis.

Results

Physicians documented 857 patient encounters. About 57% of patients were female. More than one third of the patient population was aged 20 years or younger, with roughly 21% of patients between ages 1 and 11 years. Approximately 27% of patients were aged 21-40 years, and adults aged 41-60 years accounted for 22% of patients. Ten percent of patients were aged 60 years or older. The youngest patient was 1 day old, while the oldest was aged 97 years. Doctors recorded 1476 diagnoses. The most frequent diagnoses were refractory disorders, such as presbyopia, myopia, hyperopia, and astigmatism; eye disorders classified as nonspecific pain, swelling, redness, or discharge; and worms.

Patients were most often treated with prescription medication, followed by counseling. The most commonly prescribed medications were vitamins, antiparasitic, and anti-inflammatory medications.

Conclusion

Further research into improved data collection methods is indicated. The forced-choice, paper-and-pencil format has proved to be preferable to the free-text form. However, any paper data collection form will add weight and volume to the blocks of equipment that are transported to the operation. Therefore, NHRC plans to create and test data collection methods where providers in the field use hand-held computers to record data that can then be electronically transmitted to NHRC. It is predicted/expected that this method will reduce errors and save time and may eventually replace paper-and-pencil forms completely.

NHRC will continue to expand its base of patient encounter data for OOTW. Researchers will employ several methods to accomplish this expansion. Cooperative efforts, such as the Guatemala mission described in this paper, will be carried out to collect original data. In addition, established sources of data for disease and injury rates, such as the Center for Disease Control, the World Health Organization, the Red Cross, and other non-government organizations will continue to be explored. The information about OOTW will be incorporated into the NHRC Estimating Supplies Program model, thereby increasing the depth and scope of that planning tool.

Introduction

Operations Other Than War (OOTW) utilize US military capabilities across a wide range of operational scenarios short of war. OOTW differ from wartime operations in important ways. During war, the goal is to win, to achieve national objectives, and to conclude hostilities with as few casualties as possible. OOTW, however, focus on deterring war, resolving conflict, promoting peace, and supporting civil authorities. Figure 1 depicts the range of military operations.

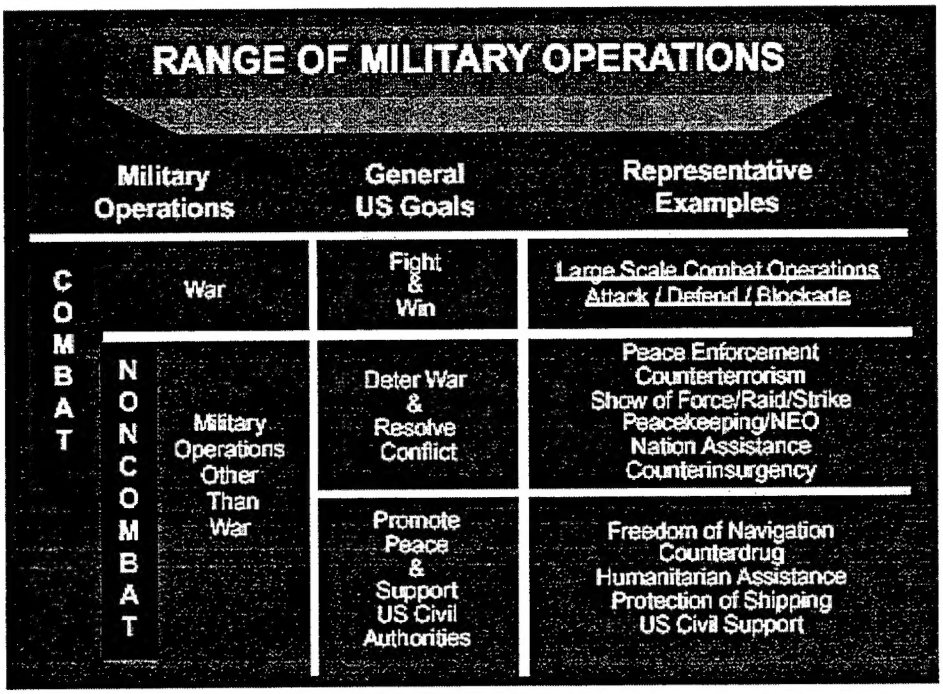

Figure 1. Range of military operations.

Since the end of the Cold War, the United States has taken part in a wide variety of OOTW, and it is expected that our military participation will increase in the future.[1] It is important to consider OOTW as well as war when planners and logisticians strive to maintain operational readiness. Military operations such as peacekeeping, disaster relief, and humanitarian assistance are basic to two foundations of US military strategy: forward presence and crisis response.[2] The provision of Health Service Support (HSS) is a major factor in these operations, and Navy medical units may need to make rapid deployments to varied geographic areas where the host country's medical infrastructure may be in chaos. Medical personnel must be prepared to treat endemic diseases, both in civilians and the military, and must be ready to set up in primitive, unfamiliar conditions. The education and training levels of HSS professionals and technicians are critical to the success of assistance operations.

Training methods for HSS include classroom instruction, simulations, and exercises. Each of these provides preparation for some aspect of operational medicine. The

classroom provides the medical knowledge that underlies the whole system. Simulations give practice for medical techniques, and exercises offer the experience of working in austere surroundings. However, none of these give real-life, real-time experience working in a host nation with the local population.

In late 1999, the Naval Medical Center San Diego (NMCSD) approved a proposal to send NMCSD medical personnel on a mission with a non-government organization (NGO) (A. Morton, NMCSD, written communication, October 1999). By so doing, NMCSD created a unique opportunity for its military personnel to receive real-world training not available through traditional training methods.

The proposal describes HELPS, International (HELPS) as an NGO that has been organizing surgical missions into Central America since 1982. Approximately 50 people participate in each mission. The medical teams are composed of physicians, nurses, and ancillary staff. Historically, participants have been self-funded volunteers. However, for the mission of February 5-16, 2000, 11 of the team members were medical staff from NMCSD. The Navy contingent included two recovery nurses, physicians specializing in dermatology, infectious diseases, and pediatrics (one each), an optometrist, three surgical ophthalmologists, and two ophthalmologic surgical technicians. On an average mission, 100 to 150 surgical procedures are performed. Teams travel to remote locations in Guatemala and set up field hospitals in existing but unutilized structures. HELPS enjoys an excellent relationship with the government, as well as the people, of Guatemala.

The Naval Health Research Center (NHRC) has been conducting research into another aspect of operational readiness, that of planning for the medical personnel and materiel needed to successfully conduct operations in given scenarios. In this project, NHRC reviewed the Fleet Marine Force Authorized Medical Allowance (AMAL) blocks. This was accomplished by linking patient conditions, standardized treatments for each condition, and standardized supplies needed to perform each treatment task. The logistical footprint, or the weight and cube, was reduced for each AMAL reviewed.[3-7] Currently, researchers are completing work on a user-friendly planning tool, the Estimating Supplies Program (ESP),[8] which is available to military planners via the Internet.[9]

NMCSD and NHRC have collaborated so that both organizations can benefit. NHRC, in refining ESP, is in the process of adding OOTW scenarios to the model. To accomplish this, researchers are looking into methods for improved data collection, so that patient data for OOTW as well as other military operations can be gathered accurately and efficiently. Two previous OOTW operations, a peacekeeping mission in Zagreb, Croatia,[10,11] and a humanitarian mission to Haiti[12] have been documented by medical personnel deployed on those missions and summarized by NHRC researchers.

Analysis of the empirical data from these operations produced valuable information about the nature of OOTW. First, the composition of the population at risk differs from that of a

purely military operation because the personnel in medical units exhibit demographics different from those in combat units, and this introduces the need to plan for medical conditions not usually encountered during combat. Second, the civilian population of the host country may require care, thus necessitating planning considerations for endemic illnesses both in the civilian and the military population.

Data collection techniques for both the Zagreb and the Haiti missions consisted of a paper-and-pencil, free text instrument. While the proactive support of the leadership in both missions produced excellent data, there were some areas for improvement. The free-text aspect of the instruments resulted in a lack of conformity of language; for example, pain in the stomach might be called "abdominal cramps," "gastritis," or "stomachache." Some of the handwriting was illegible. Therefore, it was necessary to interpret, code, and standardize the data before data entry could be undertaken.

The goals of this project were to gather medical treatment data for the development of the OOTW database and to create an improved data collection form that would alleviate these problems within a reasonably simple format that would be convenient for providers. NHRC would benefit by testing the new instrument under field conditions, and NMCSD would benefit by receiving electronic documentation of the patient demographics, diagnoses, treatments, and medications that their personnel experienced.

Methods

Hermansen and Wilcox developed a forced-choice patient encounter form to collect data about diagnoses, treatments, medications, and surgery in a given operational scenario.[13] For the present study, researchers adapted this form to fit the Guatemalan OOTW mission. For example, provider specialties included ophthalmology, optometry, pediatrics, and dermatology. The form, therefore, included conditions, treatments, and medications specific to these fields, as well as those that might be encountered in the Guatemalan climate and geography. The revised Patient Encounter Form is shown in Appendix A.

In Guatemala, healthcare providers recorded data for more than 75% of all patient encounters. The completed forms were returned to NHRC, where researchers created an electronic database and analyzed the data. Navy physicians who had accompanied HELPS were available for consultation in the event that questions arose during the analysis.

Results

Physicians documented 857 patient encounters. About 57% of patients were female. More than one third of the patient population was aged 20 years or younger, with roughly 21% of patients between ages 1 and 11 years. Approximately 27% of patients were aged 21-40 years, and adults aged 41-60 years accounted for 22% of patients. Ten percent of

patients were aged 60 years or older. The youngest patient was 1 day old, while the oldest was aged 97 years.

Table 1. Patient Demographics, by Sex

Sex	Number	%
Female	492	57.4%
Male	332	38.7%
Not specified	33	3.9%
Total	857	100.0%

Table 2. Patient Demographics by Age

Age, y	Number	%	Grouped %
Less than 1	42	4.9%	
1-10	179	20.9%	
11-20	93	10.9%	
<20			36.7%
21-30	112	13.1%	
31-40	118	13.8%	
21-40			26.9%
41-50	120	14.0%	
51-60	72	8.4%	
41-60			22.4%
61-70	39	4.6%	
71-80	38	4.4%	
>80	6	0.7%	
>60			9.7%
Not specified	38	4.4%	
Not specified			4.4%
Total	**857**	**100.0%**	

Doctors documented 1476 diagnoses. The most frequent diagnoses are shown in Table 3. Appendix B provides a detailed list of all the diagnoses and their International Classification of Diseases, 9th Revision, Clinical Modification codes (ICD-9-CM).[14] The most frequent diagnoses were refractory disorders, such as presbyopia, myopia, hyperopia, and astigmatism; eye disorders classified as nonspecific pain, swelling,

Table 3. Most Frequent Diagnoses

ICD-9-CM	Diagnosis	N	%	Cumulative %
36700	All Refractory Disorders	174	11.79%	11.79%
37990	Eye Disorder	115	7.79%	19.58%
12890	Worms	104	7.05%	26.63%
72890	MS Pain	64	4.34%	30.96%
36990	Visual Loss	55	3.73%	34.69%
78400	Headache	55	3.73%	38.41%
00930	Diarrhea	50	3.39%	41.80%
36810	Visual Disturbance	44	2.98%	44.78%
36600	Cataract	41	2.78%	47.56%
53550	Gastritis	40	2.71%	50.27%
28590	Anemia	39	2.64%	52.91%
26990	Nutritional Deficiencies	38	2.57%	55.49%
55890	Gastroenteritis/Colitis	36	2.44%	57.93%
78900	Abdominal Pain	28	1.90%	61.79%
55200	Hernia	25	1.69%	63.48%
59900	Urinary Tract Infection	22	1.49%	64.97%
46590	URI	20	1.36%	66.33%
37240	Pterygium	19	1.29%	67.62%
49000	Bronchitis	19	1.29%	68.90%
13300	Scabies	17	1.15%	70.05%
69000	Dermatitis/Rash	17	1.15%	71.21%
48600	Pneumonia	16	1.08%	72.29%
37515	Dry Eyes	15	1.02%	73.31%
37200	Conjunctivitis	15	1.02%	74.32%
68200	Cellulitis	15	1.02%	75.34%
11040	Tinea	14	0.95%	76.29%
V22.2	Pregnancy	14	0.95%	77.24%
53081	Reflux	13	0.88%	78.12%
13690	Parasites	13	0.88%	79.00%
71800	Joint Derangement	13	0.88%	79.88%
38100	Otitis Media	11	0.75%	80.62%
78070	General Malaise/Fatigue	11	0.75%	81.37%
72700	Tendinitis	10	0.68%	82.05%
46200	Pharyngitis	10	0.68%	82.72%
68400	Impetigo	10	0.68%	83.40%
37990	Burning Eyes	10	0.68%	84.08%

redness, or discharge; and worms. Patient treatments are listed in Table 4, which reveals that patients were most often treated with prescription medication, followed by counseling. Table 5 lists the medications, of which vitamins, antiparasitic, and anti-inflammatory medications were prescribed most often.

Table 4. Types and Frequencies of Treatments Provided

Treatment	N	%
Prescription	591	37.9%
Counseling	516	33.0%
Vision screening	147	9.4%
Physical examination	125	8.0%
Glasses	109	7.0%
Surgery	35	2.3%
Referral	7	.5%
Miscellaneous (fewer than 4 each)	30	1.9%
Total	**1560**	**100.0%**

Table 5. Prescriptions

Medicine	N	%
Vitamins	330	24.6%
Antiparasitic	286	21.3%
Anti-inflammatory	200	14.9%
Antibiotics	169	12.6%
Artificial tears	131	9.7%
Antacids	55	4.1%
Antifungal	45	3.3%
Acetaminophen	32	2.4%
Cold	14	1.0%
Miscellaneous (fewer than 14 each)	82	6.1%
Total	**1344**	**100.0%**

In addition, data for 35 surgeries were reported. Eleven of the surgeries were cataract excisions, eight were hernia repairs, and three were prolapsed uterus repairs. There were 13 other surgical procedures performed during the mission, including 10 additional eye surgeries, a bladder repair, a tumor removal, and a circumcision.

Discussion

The Navy physicians who participated in the HELPS humanitarian mission to Guatemala reported a wide variety of diagnoses and treatments, particularly in areas related to the

eyes and to visual problems. Appendix B lists 33 such diagnoses in the ICD-9-CM classification for diseases of the nervous system and sense organs. Physicians also performed surgeries and prescribed glasses. These data indicate that doctors had the opportunity to work within their specialties and demonstrate that the mission provided a platform for training military physicians in the field. The after-action report includes evaluations from members of each specialty, including nurses and technicians (A. Morton, NMCSD, written communication, April 20, 2000). They agreed that the hands-on training experience taught them valuable lessons in working in the field; that is, they learned to improvise and to diagnose without benefit of the latest testing equipment. They learned as well the importance of sanitation and personal hygiene, particularly in regard to food. Another benefit they cited was intangible but invaluable, and that was the morale-building sense of having provided assistance to people who needed and valued it.

NHRC researchers, in evaluating the efficacy of the patient encounter data collection sheet, found that the forced-choice format offers several improvements over the free-text version. The data were more uniform, and illegibility was reduced greatly; therefore, the extra step of coding the sheets was eliminated. The doctors, too, preferred writing as little as possible. However, there is still room for improvement. This form did not successfully link diagnostic data with treatment and prescription information, and valuable information was sometimes lost. Further, the list format (see Appendix A) was not intuitive; that is, providers easily missed items because they were not where they were expected to be. For example, the diagnosis of "worms" was sometimes missed because doctors did not see it under "Infectious and Parasitic Diseases."

Conclusion

The collaboration of NHRC, NMCSD, and HELPS was an innovative effort was beneficial to all. The project enabled NHRC researchers to devise and test a data collection instrument and also to add to their experience with OOTW projects. NMCSD personnel received valuable field training, which is essential to operational medical readiness. In addition, they profited personally from the experience through improved morale resulting from the realization that they performed well. The data collected and analyzed by NMCSD and NHRC also documented the mission and provided information for future planning. HELPS received the services of a team of skilled physicians, nurses, and technicians, and the Guatemalan people received the benefits of expert medical care.

Further research into improved data collection methods is indicated. The forced-choice, paper-and-pencil format has proved to be preferable to the free-text form. However, any paper data collection form will add weight and volume to the blocks of equipment that are transported to the operation. Therefore, NHRC plans to create and test data collection methods where providers in the field use hand-held computers to record data that can then be electronically transmitted to NHRC. It is expected that this method will reduce errors and save time, and may eventually replace paper-and-pencil forms completely.

NHRC will continue to expand its base of patient encounter data for OOTW. Researchers will employ several methods to accomplish this expansion. Cooperative efforts, such as the Guatemala mission described in this report, will be carried out to collect original data. In addition, established sources of data for disease and injury rates such as the Center for Disease Control, the World Health Organization, the Red Cross and other NGOs will continue to be explored. The information about OOTW will be incorporated into the NHRC ESP model, thereby increasing the depth and scope of that planning tool.

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Appendix A

Revised Patient Encounter Form

MEDICAL ENCOUNTER DATA SHEET (MEDS)

I. PATIENT INFORMATION

DATE OF VISIT (YY/MM/DD): ____/____/____	NAME (LAST, FIRST, MI)	AGE:	SEX: ☐ MALE ☐ FEMALE

TOWN/VILLAGE:

II. SIGNS, SYMPTOMS, AND DIAGNOSES

INFECTIOUS DISEASES:

- ☐ DENGUE FEVER
- ☐ HERPES SIMPLEX VIRUS
- ☐ SEPSIS
- ☐ TUBERCULOSIS
- ☐ TYPHOID FEVER
- ☐ OTHER, SPECIFY:

PARASITIC CONDITIONS:

- ☐ LICE
- ☐ SCABIES
- ☐ TINEA
- ☐ WARTS
- ☐ WORMS
- ☐ OTHER, SPECIFY:

RESPIRATORY:

- ☐ ASTHMA
- ☐ BRONCHITIS
- ☐ PHARYNGITIS
- ☐ PNEUMONIA
- ☐ RHINITIS
- ☐ SINUSITIS
- ☐ TONSILLITIS
- ☐ URI
- ☐ OTHER, SPECIFY:

KIDNEY:

- ☐ HYPERTENSION
- ☐ URINARY TRACT INFECTION
- ☐ OTHER, SPECIFY:

GASTROINTESTINAL:

- ☐ APPENDICITIS
- ☐ BACILLARY DYSENTARY
- ☐ CONSTIPATION
- ☐ DIARRHEA
- ☐ GASTROENTERITIS/COLITIS
- ☐ HEMORRHOIDS
- ☐ HERNIA
- ☐ OTHER, SPECIFY:

MUSCULOSKELETAL:

- ☐ INTERVERTEBRAL DISC DISORDER
- ☐ JOINT DERANGEMENT
- ☐ OSTEOMYELITIS
- ☐ TENDINITIS
- ☐ OTHER, SPECIFY:

NERVOUS SYSTEM:

- ☐ HEADACHE
- ☐ MENINGITIS
- ☐ SEIZURE
- ☐ OTHER, SPECIFY:

PSYCHOLOGICAL DISORDERS:

- ☐ ALCOHOL ABUSE
- ☐ ANXIETY
- ☐ DEPRESSION
- ☐ DRUG ABUSE
- ☐ SITUATIONAL DISTURBANCE
- ☐ OTHER, SPECIFY:

ENT:

- ☐ CATARACT
- ☐ CONJUNCTIVITIS
- ☐ EAR DISORDER
- ☐ EYE DISORDER
- ☐ EYE FOREIGN BODY, EXTERNAL
- ☐ HEARING LOSS
- ☐ OTITIS EXTERNA
- ☐ OTITIS MEDIA
- ☐ VERTIGO, PERIPHERAL
- ☐ VISUAL DISTURBANCE
- ☐ VISUAL LOSS
- ☐ OTHER, SPECIFY:

SKIN:

- ☐ CELLULITIS
- ☐ DERMATITIS/RASH
- ☐ FOLLICULITIS
- ☐ HEAT RASH
- ☐ INGROWN TOENAIL
- ☐ PYODERMA/BOIL/ABSCESS/CARBUNCLE
- ☐ OTHER, SPECIFY:

STD:

- ☐ CHANCROID
- ☐ GENITAL HERPES VIRUS
- ☐ GONORRHEA
- ☐ NON-SPECIFIC URETHRITIS
- ☐ SYPHILIS
- ☐ OTHER, SPECIFY:

GYNECOLOGY:

- ☐ CERVICITIS
- ☐ FEMALE DISEASE, OTHER
- ☐ MENOPAUSAL DISORDERS
- ☐ PREGNANCY
- ☐ VAGINITIS/VULVITIS
- ☐ OTHER, SPECIFY:

NUTRITIONAL:

- ☐ ANEMIA
- ☐ DEHYDRATION
- ☐ GOITER
- ☐ GOUT
- ☐ NUTRITIONAL DEFICIENCIES
- ☐ THYROID NODULE
- ☐ OTHER, SPECIFY:

OTHER MEDICAL PROBLEMS:

- ☐ FEVER OF UNDETERMINED ORIGIN
- ☐ GENERAL MALAISE/FATIGUE
- ☐ OTHER, SPECIFY:

ACCIDENTS/TRAUMA: Show TYPE OF INJURY and LOCATION by checking the appropriate boxes.

TYPE OF INJURY

- ☐ ABRASION
- ☐ BRUISE
- ☐ BURN (CHEMICAL)
- ☐ BURN (HEAT)
- ☐ FOREIGN BODY
- ☐ FRACTURE
- ☐ HEAT EXHAUSTION
- ☐ HEAT STROKE
- ☐ LACERATION
- ☐ POISONING
- ☐ PUNCTURE WOUND
- ☐ SPRAIN/STRAIN
- ☐ OTHER, SPECIFY:

LOCATION

- ☐ SCALP
- ☐ FACE
- ☐ EYE
- ☐ EAR
- ☐ MOUTH
- ☐ NECK
- ☐ CHEST
- ☐ RIBS
- ☐ SHOULDER
- ☐ UPPER ARM
- ☐ ELBOW
- ☐ FOREARM
- ☐ WRIST
- ☐ HAND
- ☐ FINGER
- ☐ BACK
- ☐ ABDOMEN
- ☐ HIP/BUTTOCK
- ☐ GROIN/GENITAL
- ☐ UPPER LEG
- ☐ KNEE
- ☐ SHIN/CALF
- ☐ ANKLE
- ☐ FOOT
- ☐ TOE
- ☐ DOES NOT APPLY

DENTAL PROBLEMS:

- ☐ ABSCESS/INFECTION
- ☐ CARIES
- ☐ ENDODONTIC
- ☐ GINGIVITIS/PERIODONTAL
- ☐ ORAL ULCERS
- ☐ PERICORONITIS
- ☐ OTHER, SPECIFY:

DENTAL PROCEDURES:

- ☐ ENDODONTIC TREATMENT
- ☐ EXAM
- ☐ EXTRACTION
- ☐ FILLING
- ☐ MEDICATION, SPECIFY
- ☐ OTHER, SPECIFY:

III. PROGNOSIS

IV. TREATMENT(S) PROVIDED (Check any that apply.)

- ☐ COUNSELING
- ☐ PRESCRIPTION(S)
- ☐ SURGERY/SUTURE PROCEDURES
- ☐ OTHER, SPECIFY _____
- ☐ CAST/SPLINT/ACE WRAP
- ☐ DRESSING
- ☐ HOSPITALIZATION, SPECIFY LENTH OF STAY _____ DAYS
- ☐ PHYSICAL EXAM
- ☐ VISION SCREENING

V. SURGERY (Check the PROCEDURE and LOCATION)

PROCEDURE

- ☐ CLOSURE
- ☐ DEBRIDEMENT
- ☐ AMPUTATION
- ☐ RESECTION
- ☐ FIXATION
- ☐ GRAFT
- ☐ LOBECTOMY
- ☐ DRAIN
- ☐ OPEN
- ☐ OTHER/SPECIFY _____

LOCATION

- ☐ ESOPHABUS
- ☐ ARM
- ☐ THORAX
- ☐ DIAPHRAGM
- ☐ BACK W/SPLEEN
- ☐ BACK W/OSPLEEN
- ☐ ABDOMEN
- ☐ SMALL INTESTINE
- ☐ DUODENUM
- ☐ COLON
- ☐ EYE
- ☐ GENERAL
- ☐ RECTUM
- ☐ LIVER
- ☐ PANCREAS
- ☐ SPLEEN
- ☐ KIDNEY
- ☐ BLADDER
- ☐ GROIN
- ☐ GENITAL
- ☐ REPRODUCT.
- ☐ LEG
- ☐ NONE

ANESTHESIA? ☐ LOCAL

☐ BURN SPECIFY % BSA FOR EACH

1ST DEGREE_____ 2ND DEGREE_____ 3RD DEGREE_____

VI. MEDICATIONS PRESCRIBED (Check the type of medication)

- ☐ ANTIBIOTICS
- ☐ VITAMINS
- ☐ ANTI-INFLAMMATORY
- ☐ ANTI-PARASITIC
- ☐ ANTIFUNGAL
- ☐ ANTACIDS
- ☐ COLD/ALLERGY
- ☐ OTHER_____

VII. VISIT TYPE:

- ☐ LIMITED SERVICE
- ☐ OUTPATIENT
- ☐ INPATIENT

IF THIS IS A FOLLOW-UP VISIT, PLEASE SPECIFY:

PURPOSE OF INITIAL VISIT_____

PURPOSE OF THIS VISIT_____

NARRATIVE SUMMARY (Include obstacles to care and how overcome):

Provider Name

Provider Specialty

Appendix B

Diagnoses Classified by ICD-9-CM Codes

Infectious & Parasitic Diseases		
12890 Worms	104	7.19%
00930 Diarrhea	50	3.46%
13300 Scabies	17	1.17%
11040 Tinea	14	0.97%
13690 Parasites	13	0.90%
13290 Lice	7	0.48%
07999 Viral Syndrome	4	0.28%
11790 Fungal Infection	4	0.28%
03890 Sepsis	2	0.14%
07010 Hepatitis A	2	0.14%
07810 Warts	2	0.14%
08460 Malaria	2	0.14%
09800 Gonorrhea	2	0.14%
11010 Onychomycosis	2	0.14%
00400 Bacillary Dysentary	1	0.07%
05290 Varicella	1	0.07%
05490 Coldsore	1	0.07%
06100 Dengue Fever	1	0.07%
08590 Leishmaniasis	1	0.07%
11000 Kerlon	1	0.07%
11200 Oral Thrush	1	0.07%
Neoplasms		
23100 Carcinoma	1	0.07%
23920 Skin Cancer	1	0.07%
23940 Bladder Tumor	1	0.07%
Endocrine, Nutritional, Metabolic Imm		
26990 Nutritional Deficiencies	38	2.63%
27650 Dehydration	3	0.21%
Diseases Of The Blood And Blood-Forming Organs		
28590 Anemia	39	2.70%
Mental Disorders		
30000 Anxiety	1	0.07%
Diseases Of The Nerv. Sys. & Sense Organs		
36700 All Refractory Disorders	174	12.02%
37990 Eye Disorder	115	7.95%
36990 Visual Loss	55	3.80%
36810 Visual Disturbance	44	3.04%
36600 Cataract	41	2.83%
37240 Pterygium	19	1.31%
37200 Conjunctivitis	15	1.04%
37515 Dry Eyes	15	1.04%
38100 Otitis Media	11	0.76%
37990 Burning Eyes	10	0.69%
36731 Anisometopia	5	0.35%
38010 Otitis Externa	4	0.28%
38990 Hearing Loss	4	0.28%
37320 Chalazion	3	0.21%
37800 Esotropia	3	0.21%
37990 Eye Pain	3	0.21%
35180 Hemifacial Spasm	2	0.14%
36700 Age Related Vis. Loss	2	0.14%
37950 Nystagmus	2	0.14%
38890 Ear Disorder	2	0.14%
34690 Migraine	1	0.07%
36190 Retinal Detachment	1	0.07%
36265 Macular Pig. Disrupt	1	0.07%
36430 Iritis	1	0.07%
36740 Poor Vision	1	0.07%
36813 Photophobia	1	0.07%
36900 Cortical(?) Blindness	1	0.07%
37100 Corneal Scar	1	0.07%
37261 Pyogenic Conjunctival Granuloma	1	0.07%
37500 Blocked Tear Duct	1	0.07%
37520 Epiphora	1	0.07%
37530 Dacryocystitis	1	0.07%
37556 Lacrimal Duct Stenosis	1	0.07%
37900 Episcleritus Os.	1	0.07%
37990 Twitch, Left Eye	1	0.07%
37990 Tearing Eyes	1	0.07%
38189 No Ear Canals	1	0.07%
38600 Menieres	1	0.07%
38610 Vertigo, Peripheral	1	0.07%
38870 Left Ear Pain	1	0.07%
Diseases Of The Circulatory System		
40190 Hypertension	2	0.14%
41390 Angina	2	0.14%
42410 Aortic Stenosis	1	0.07%
42789 Supraventricular Tachycardia	1	0.07%
45490 Varicose Veins	1	0.07%
45981 Venous Insufficiency	1	0.07%
Diseases Of The Respiratory System		
46590 Uri	20	1.38%
49000 Bronchitis	19	1.31%
48600 Pneumonia	16	1.11%
46200 Pharyngitis	10	0.69%
46100 Sinusitis	5	0.35%
49390 Asthma	4	0.28%
47790 Rhinitis	3	0.21%
51100 Pleurisy	2	0.14%
51880 Copd	2	0.14%

46300 Tonsillitis	1	0.07%
47411 Enlarged Tonsils	1	0.07%
47790 Allergies	1	0.07%
Diseases Of The Digestive System		
53550 Gastritis	40	2.76%
55890 Gastroenteritis/Colitis	36	2.49%
55200 Hernia	25	1.73%
53081 Reflux	13	0.90%
53190 Ulcer	2	0.14%
52100 Rotten Tooth	1	0.07%
52460 Tmj Pain	1	0.07%
52590 Odontalgia	1	0.07%
56400 Constipation	1	0.07%
56510 Rectal Fistula	1	0.07%
Diseases Of The Genitourinary System		
59900 Urinary Tract Infection	22	1.52%
61610 Vaginitis/Vulvitis	9	0.62%
61810 Uterine Prolapse	5	0.35%
60190 Prostatitis	2	0.14%
61100 Mastitis	2	0.14%
62520 Mittelschmerz	2	0.14%
62530 Dysmenorrhea	2	0.14%
62650 Gynecological Bleeding	2	0.14%
62720 Menopause	2	0.14%
59590 Cystitis	1	0.07%
60000 Prostate Hypaplasia	1	0.07%
60500 Phimosis	1	0.07%
61600 Cervicitis	1	0.07%
62020 Ovarian Cyst	1	0.07%
62590 Female Disease, Other	1	0.07%
62680 Long Menses	1	0.07%
Diseases Of The Skin & Subcutaneous Tissue		
69000 Dermatitis/Rash	17	1.17%
68200 Cellulitis	15	1.04%
68400 Impetigo	10	0.69%
68000 Pyoderma/Boil/Abscess/ Carbuncle	4	0.28%
69270 Heat Rash	4	0.28%
70909 Freckles	2	0.14%
69290 Eczema	1	0.07%
69310 Food Allergies	1	0.07%
69830 Lichen Simplex Chronicus	1	0.07%
70480 Folliculitis	1	0.07%
70710 Leg Ulcer	1	0.07%
Diseases Of The Musc. System & Connective Tissue		
72890 Ms Pain	64	4.42%
71800 Joint Derangement	13	0.90%
72700 Tendinitis	10	0.69%
71690 Arthritis	8	0.55%
72450 Back Pain	8	0.55%
73000 Osteomyelitis	4	0.28%
71590 Djd	3	0.21%
71940 Arthralgias	2	0.14%
71945 Left Hip Pain	1	0.07%
72871 Plantar Fasciitis	1	0.07%
Congenital Anomalies		
74900 Cleft Palate	1	0.07%
75920 Thyroglossal Cyst	1	0.07%
Symptoms, Signs & Ill-Defined Conditions		
78400 Headache	55	3.80%
78900 Abdominal Pain	28	1.94%
78070 General Malaise/Fatigue	11	0.76%
78030 Seizure	2	0.14%
78300 Dec Appetite	2	0.14%
78620 Cough	2	0.14%
78100 Tremor	1	0.07%
78449 Dysphonia	1	0.07%
78470 Epistaxis	1	0.07%
78520 Heart Murmur	1	0.07%
78650 Chest Pain	1	0.07%
78710 Heartburn	1	0.07%
78830 Incontinence	1	0.07%
84090 Tendon Lacer., L. Hand	1	0.07%
87130 Enucleation	1	0.07%
87140 Corneal Laceration	1	0.07%
Injury & Poisoning		
91900 Bite	1	0.07%
92490 Coccyx Bruise	1	0.07%
95990 Grenade Injury	1	0.07%
99820 Laceration	1	0.07%
Supplementary Classifications		
V22.2 Pregnancy	14	0.97%
V70 Normal Exam	7	0.48%
V71.02 Behavior Probs.	2	0.14%
V20 Mother Died	1	0.07%
V62.8 Nervous	1	0.07%
V74.1 R/O Tb	1	0.07%
V81 Heart Eval–OK	1	0.07%
Other		
99999 Unreadable/Unknown	29	2.00%
Total	**1476**	**100%**

REPORT DOCUMENTATION PAGE

1. Report Date (DD MM YY)
18-04-01

2. Report Type
Interim

3. DATES COVERED (from - to)
01-03-00 to 01-03-01

4. TITLE AND SUBTITLE
Documenting Patient Encounters During a Humanitarian Assistance Mission to Guatemala

5a. Contract Number:
5b. Grant Number:
5c. Program Element: 63706N
5d. Project Number: M0095
5e. Task Number: 001
5f. Work Unit Number: 60101

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9. PERFORMING ORGANIZATION REPORT NUMBER
Report No. 01-13

8. SPONSORING/MONITORING AGENCY NAMES(S) AND ADDRESS(ES)
Chief, Bureau of Medicine and Surgery
MED-02
2300 E St NW
Washington DC 20372-5300

10. Sponsor/Monitor's Acronyms(s)
ONR / BUMED

11. Sponsor/Monitor's Report Number(s)

12 DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT (maximum 200 words)
Researchers from the Naval Health Research Center (NHRC) collected patient encounter data from Naval Medical Center San Diego (NMCSD) physicians who traveled with a non-government organization, HELPS, International, on a humanitarian assistance mission to Guatemala. The purpose was for NHRC to expand its database of operations other than war patient information and to test a revised patient encounter form. The purpose of the NMCSD staff was to train to provide medical care under austere conditions. Data were collected for 857 patient encounters during which 1476 diagnoses were made. Women comprised 57% of the sample, and children aged 1-10 formed the largest age group (20.9%). The NMCSD staff included several eye specialists; therefore, the diagnoses were most frequently ophthalmologic conditions. Other frequent diagnoses included worms, musculoskeletal pain, headaches, and diarrhea. The revised, forced-choice patient encounter form alleviated problems of illegibility and nonstandard language often found in free-text forms. Future research will continue to improve data collection methods and to expand the NHRC medical information database.

15. SUBJECT TERMS
OOTW, humanitarian assistance, patient record, data collection

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b.ABSTRACT	c. THIS PAGE			Commanding Officer
UNCL	UNCL	UNCL	UNCL	20	19b. TELEPHONE NUMBER (INCLUDING AREA CODE) COMM/DSN: (619) 553-8429